

## Movie Catalog Requirements

The software must maintain and searchable movie catalog. The software must allow create/update/delete operations on Movies, Movie Directors and Movie Ratings.

### Functional Requirements

- **Must** display the full list of Movies
- **Must** display the full list of Movie Directors
- **Must** display the full list of Movie Ratings
- Display Movies with their Movie Director and Movie Rating
- **Must** allow Movies, Movie Directors and Movie Ratings to be **inserted** to the catalog
- **Must** allow any existing entries to be **updated** from the catalog
- **Must** allow any existing entries to be **deleted** from the catalog
- **Must** be able to create/update a Movie with multiple Movie Directors
- **Must** be able to create/update a Movie with a Movie Rating
- Be able to create new Movie Director and Movie Rating entries with creation of a Movie entry
- **Must** be able to search for Movies by Movie Director name
- **Must** be able to search for Movies by Movie Rating symbol, returning Movies with ratings greater-than-or-equal to provided Movie Rating

### Non-Functional/Technical Requirements

- Movies need some join with Movie Directors and Movie Ratings
- Movie Ratings need some numerical basis for ordering
- Use Data Types Standards from the UK Government GDS Catalogue
- All communication with the program **must** be via REST
- **Must** use Spring Framework to create a wholly self contained artifact, built by Maven.
- **Must** compile in Java 8.
- **Must** be within a git repository (remote not necessary).
- **Must** persist data across application restarts (may persist outside the runnable artifact) using an RDBMS with appropriate model relationships.
- **Must** allow data manipulation via REST.
- **Must** contain an appropriate level of Unit Test coverage.
- **Must** provide documentation to describe application functionality (JavaDoc, UML diagrams and/or text based documentation is acceptable).
- Software **must** be made available to users either in a zip file attached to email, or publicly hosted (GitHub etc.) with a provided link.
- Software to be completed within a week.

## Useful Resources

Spring Boot:

<https://spring.io/guides/gs/spring-boot/>

<https://docs.spring.io/spring-data/jpa/docs/current/reference/html/#reference>

<https://www.baeldung.com/spring-jpa-like-queries>

<https://www.baeldung.com/spring-data-jpa-query>

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<https://github.com/johnathanleif/>

<https://www.baeldung.com/spring-data-jpa-projections>  
<https://thorben-janssen.com/spring-data-jpa-query-projections/>  
<https://www.thetopsites.net/article/52726827.shtml>

Validation:

<https://www.baeldung.com/spring-boot-bean-validation>

RESTful:

<https://spring.io/guides/tutorials/rest/>  
<https://medium.com/javarevisited/spring-restful-part-1-hibernate-2078b42f6022>  
<https://loiane.com/2019/01/crud-rest-api-using-spring-boot-2-hibernate-jpa-and-mysql/>  
<https://blog.unosquare.com/how-to-rest-build-a-ful-api-ui-apps-easily>  
<https://stackoverflow.com/questions/10302179/hyphen-underscore-or-camelcase-as-word-delimiter-in-uris>  
<https://restfulapi.net/resource-naming/>

MySQL:

<https://www.springboottutorial.com/spring-boot-with-mysql-and-oracle>  
<https://www.codejava.net/frameworks/spring-boot/connect-to-mysql-database-examples>  
<https://spring.io/guides/gs/accessing-data-mysql/>

H2 Embedded Database:

<https://stackoverflow.com/questions/12961133/supplying-a-database-with-a-java-jar-file>  
<https://www.baeldung.com/spring-boot-data-sql-and-schema-sql>  
<https://www.baeldung.com/h2-embedded-db-data-storage>  
<https://www.javacodegeeks.com/2018/08/restful-api-spring-rest-data-jpa-h2.html>  
<https://javabydeveloper.com/spring-boot-loading-initial-data/>

API Documentation/Swagger UI:

<https://www.dariawan.com/tutorials/spring/documenting-spring-boot-rest-api-swagger/>  
<https://www.baeldung.com/java-swagger-api-description-deprecated>

Artifact Creation:

<https://www.baeldung.com/deployable-fat-jar-spring-boot>

Git:

<https://ssodelta.wordpress.com/2014/05/06/how-to-connect-eclipse-to-github/>

Limitation on URI format due to Swagger UI:

<https://swagger.io/docs/specification/2-0/paths-and-operations/#operations>

Domain Research:

<https://www.imdb.com/search/name/>  
[https://en.wikipedia.org/wiki/Motion\\_picture\\_content\\_rating\\_system](https://en.wikipedia.org/wiki/Motion_picture_content_rating_system)